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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,348	03/25/2004	Akira Kumagai	001425-127	5458

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EXAMINER	
NGAMPA, BRIGET P	

ART UNIT	PAPER NUMBER
1792	

NOTIFICATION DATE	DELIVERY MODE
01/02/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/808,348

Applicant(s)

KUMAGAI ET AL.

Examiner

Briget P. Ngampa

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/04,3/04</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Hasebe et al. (PG pub number 2001/0027031 A1, hereafter '031).

With respect to claim 1 and 5, '031 teaches a metal oxide chemical vapor deposition (MOCVD) method of film-forming a tantalum oxide film on a target substrate in an airtight process container comprising [0008]:
introducing oxygen radicals [0021] (oxidizing agent) and an organic tantalum(second material in gaseous state [0011]) to react with each other thereby forming a first layer of tantalum oxide [0011] (metal oxide film) on the substrate.

With respect to claims 2 and 6, all its feature has been treated in claim 1 above except the feature of being brought into contact with each other for the first time in the vacuum container. Since the reaction of the oxidizing agent (oxygen radical) and the organic tantalum is taking place on the surface of the substrate [0011] and is forming the first layer of tantalum oxide [0011], therefore, the two compounds must have contact each other for the first time in the chamber.

Claims 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Koh et al. (PG Pub 2004/0009307, hereinafter '307).

With respect to claims 9 and 10, '307 teaches the method of forming a film (tantalum oxide layer) [0033, line 8] by introducing in the reactor [0033, line 2] (processing chamber) a tantalum source (metal organic raw material) on the substrate [0033, lines 5-6], then Argon is introduced in the processing chamber follow by oxygen. Next, oxygen and plasma are supplied [0033, line 10](oxygen and plasma will generate oxygen radicals, that will now for the first time react with the tantalum (metal organic raw material), and argon is lastly supplied [0033, lines 10-11] to form a tantalum oxide layer [0033, lines 16-18].

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 4, 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasebe et al. (pg pub number 2001/0027031 A1, hereafter '031) in view of Asai et al. (PG pub2002/0197828, hereinafter '828).

With respect to claim 3, '031 teach all the limitations of claim 1. '031 failed to teach the plurality of injection holes disposed to face the substrate. '828 teaches in figure 1 that the plurality of shower holes (37) on the shower head (36) are facing the substrate (35) in the reaction chamber (31) and supply reactive gases [0032]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have used a plurality of shower holes facing the substrate in order to supply reactive gases to the substrate because '828 teaches that it is a suitable method.

With respect to claims 4 and 8 '031 teach all the limitations of claim 2, further all the features of claims 4 and 8 are the same as claim 3 above.

With respect to claim 7, which contains all the limitations of claim 3, '031 further teaches that tantalum is the metal contained in the organic gas [0011].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Briget P. Ngampa whose telephone number is 571-270-1866. The examiner can normally be reached on M-F, 830-4:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

bpn


MICHAEL CLEVELAND
SUPERVISORY PATENT EXAMINER